

Coeur en santé St-Henri – a heart health promotion programme in a low income, low education neighbourhood in Montreal, Canada: theoretical model and early field experience

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Abstract

Study objective – Coeur en santé St-Henri is a five year, community based, multi-factorial, heart health promotion programme in a low income, low education neighbourhood in Montreal, Canada. The objectives of this programme are to improve heart-healthy behaviours among adults of St-Henri. This paper describes the theoretical model underlying programme development as well as our early field experience implementing interventions.

Design – The design of the intervention programme is based on a behaviour change model adapted from social learning theory, the reasoned action model, and the precede-proceed model. The Ottawa charter for health promotion provided the framework for the development of specific interventions. Each intervention is submitted to formative, implementation, and impact evaluations using simple and inexpensive methods.

Participants – The target population consists of adults living in St-Henri, a neighbourhood of 23 360 residents. Because of costs constraints, the intervention strategy targets women more specifically. The community is one of the poorest in Canada with 46% of the population living below the poverty line and 20% being very poor. The age-sex adjusted ischaemic heart disease mortality in 1985-87 was 317 per 100 000 compared with 126 per 100 000 in an affluent adjacent neighbourhood.

Results – Thirty nine distinct interventions have been developed and tested in the community, eight related to tobacco, 10 to diet, seven to physical activity, and 14 which are multifactorial. The interventions include smoking cessation and healthy recipes contests, a menu labelling and healthy food discount programme in restaurants, a point of choice nutrition education campaign, healthy eating and smoking cessation workshops, a walking club, educational material, print and electronic media campaigns, heart health fairs, and community events.

Conclusion – An integrated heart health promotion programme is feasible in low income urban neighbourhoods but not all interventions are successful. Such a pro-

gramme requires substantial energy and resources as well as long term commitment from public health departments.

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Many chronic illnesses including cardiovascular disease (CVD) are believed to have attained epidemic proportions because of environmental factors which affect entire populations.^{1,2} The increased availability of high calorie, high fat foods, the ubiquitous presence of sodium in the diet, more sedentary lifestyles, and a social climate favourable to smoking have each played an important role in the rise in CVD mortality in western industrialised countries during the first half of the 20th century.^{3,4}

The increased interest in the community based health promotion approach to prevent disease and to promote healthy lifestyles over the past two decades arises from the realisation that CVD risk factors are, to a great extent, determined by behaviours shared by many individuals and that these behaviours are learned in a broad social and environmental context. This has led many researchers and public health professionals to advocate community wide campaigns to change social norms and physical environments as well as individual behaviours.⁵⁻¹⁰

Community based programmes generally target several risk factors, use multiple intervention strategies, and incorporate a variety of communication channels which act synergistically to facilitate the diffusion of health promotion messages.⁶ Thorough analysis and understanding of the sociodemographic composition of the community as well as its cultural and economical conditions are required to develop programmes that are well adapted to local conditions. These rely on community development, defined as the voluntary co-operation and self help/mutual aid efforts among residents of a particular locale which aim to improve the physical, social, and economic conditions of the community.¹¹ Community development promotes the acquisition of skills locally and the use of local resources which theoretically foster the long term maintenance or institutionalisation of health promotion programmes.

In theory, community based health promotion approaches have many advantages. Be-

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cause they target the population at large, they have greater potential to produce improvements in disease rates at the population level, than approaches which target only the minority at high risk.¹ They do not rely heavily on counselling of individual patients by health professionals, and are therefore less expensive per head than individually targeted health education approaches. Finally, these programmes aim not only at changing individual behaviours but also at modifying the social and physical environment, including public policy, in support of healthy lifestyles.¹²

Drawbacks include a smaller impact per individual because interventions are of lower intensity, lower motivation to change because of the small benefit to individuals from risk factor change, and major difficulties in the design and conduct of evaluation.¹³

Much of what we know about community based health promotion comes from five studies: the North Karelia project, the Stanford three-community and five-city projects, the Minnesota heart health program, and the Pawtucket heart health program.¹⁴⁻¹⁹ Each of these projects has now published data on the impact of community based intervention on risk factor prevalence.^{14,15,20-23} In addition, data from the North Karelia project²⁴⁻²⁶ show an important and similar decline in all cause and CVD mortality in both North Karelia and Kuopio, the reference province during the study period. A statistically significant difference in the ischaemic heart disease mortality trend favouring North Karelia was noted when compared to the rest of Finland, but it is unclear whether this difference was due to the intervention programme.²⁵⁻²⁷ Statistically significant net absolute declines in average systolic blood pressure (5.3 mmHg among men, 7.2 mmHg among women) and diastolic blood pressure (2.6 mmHg among men, 3.4 mmHg among women) were noted in North Karelia compared with Kuopio.¹⁴ These declines translated into 44% and 49% decreases in the prevalence of hypertension for men and women respectively. A significant 4% relative decline in serum cholesterol was noted for men but not for women. Smoking prevalence decreased by 2.5% in men and 6.1% in women but these changes did not reach statistical significance.

The Stanford three-community project showed that face to face counselling for high risk individuals with a community wide, mass media campaign was more effective after one year in reducing saturated fat intake, cigarette smoking, average plasma cholesterol, and systolic blood pressure than a mass media campaign alone. The latter was more effective than no intervention.¹⁵ The benefits of intervention remained in the second year but the difference between the mass media alone community and the combined strategy community disappeared because of continued risk factor improvement in the former and less intensive counselling in the latter. A dose response relationship was shown between increasing levels of intervention exposure and improvements in knowledge.²⁸

The Stanford five-city project expanded on the earlier Stanford study by targeting more

and larger communities, developing a more elaborate and long lasting educational campaign, and designing a more comprehensive evaluation which collected data on morbidity and mortality as well as risk factors.^{16,17} The former has not yet been published, but the data on risk factor change showed small but significant net improvements in systolic and diastolic blood pressure and in the prevalence of smoking in the cohort sample surveys.^{21,29} In the independent survey samples significantly less weight gain was observed in the treatment communities (0.57 kg compared with 1.25 kg in the control communities).³⁰ No improvements were noted in either dietary fat intake or plasma cholesterol concentrations.³¹

The more recent Minnesota and Pawtucket heart health programmes reported smaller changes than those observed in the five-city project,^{22,23} possibly related to the marked secular trend towards healthier lifestyles observed in North America over the past 15 to 20 years. This trend has resulted in notable declines in risk factor prevalence and has reduced the ability to detect changes in community studies. This trend has also affected other recent trials.³²

Although these and other ongoing projects continue to provide useful information on the design, implementation, and cost effectiveness of health promotion programmes,³³⁻³⁸ as well as on the process of health promotion programming and community development,³⁹⁻⁴⁴ many questions remain regarding the real-life application of this model of intervention. Although less costly per person than one to one education, these programmes are expensive and labour intensive. The direct cost of the 11 year Stanford five-city project was estimated at over \$14 million (US). The Minnesota and Pawtucket programmes each employed 60 or more staff.⁴⁰ The scope of the intervention programme required to produce change is such that it is not clear whether ordinary public health departments have the financial and manpower resources, let alone the expertise in health promotion planning and delivery, to implement realistic and feasible programmes which can produce change.

In addition, it is uncertain whether this model of intervention is applicable in different population subgroups and in a variety of settings. In the Stanford three-community and five-city projects the impact of intervention was reported to be similar across educational attainment levels.^{45,46} However, with the exception of the Pawtucket project and the recent Washington-Heights-Inwood programme,^{19,40} the earlier programmes were implemented in mid-size, middle class communities. It is not known whether the community based approach is feasible in large urban centres or neighbourhoods thereof.

It is now well established that low socioeconomic status populations have a higher prevalence of CVD risk factors and higher rates of CVD morbidity and mortality, than higher socioeconomic status populations.⁴⁷⁻⁴⁹ Although the prevalence of CVD risk factors seems to have decreased across all socioeconomic status groups, there remains an im-

portant gradient in risk factors⁵⁰ and increases in the mortality disparity have been noted.⁵¹ It is therefore imperative to identify effective preventive strategies for low socioeconomic groups to prevent further widening of the CVD gap between the rich and poor.

To address questions of feasibility, implementation, and impact, we undertook a heart health promotion programme in St-Henri, a poor neighbourhood located in a large urban centre. The programme was initiated in 1987 by the Department of Public Health of the Montreal General Hospital because of the very high rate of CVD mortality in the St-Henri community. This paper describes the background, design, and implementation of the *coeur en santé St-Henri* programme and discusses our early experience in the field.

Methods

STUDY POPULATION

St-Henri is a low income, low education neighbourhood located in south west downtown Montreal, Canada. The community is geographically well defined by natural borders – railway tracks to the north, a major expressway to the west, a canal to the south and the Port of Montreal to the east. The population of the Montreal area is about three million, half of whom live in the city core. In 1986, the population of St-Henri was 23 360 individuals, 76% of whom were French speaking.⁵²

St-Henri has long been recognised as one of the poorest communities in Canada. According to the 1986 Canadian census, 46% of the population were poor and 20% were very poor, compared with 24% and 12% respectively for Montreal.⁵² The average annual per capita income was \$13 000 CAN, compared with \$20 000 CAN for the rest of Montreal. Thirty five per cent of adults had completed less than nine years of schooling compared with 22% for Montreal, and 46% of families with children were single parent, compared with 27% in Montreal.

Life expectancy at birth is, on average, five years less in St-Henri than in Montreal.⁵² Men and women live to 66.9 and 75.2 years respectively, compared with 72.1 and 79.3 years in Montreal. In 1985–87, the age-sex standardised mortality rates for ischaemic heart disease (ICD 9:410-414) were 317 209, and 126 per 100 000 respectively in St-Henri, Montreal, and in Westmount, a very high SES municipality which is geographically contiguous to St-Henri.⁵³ The prevalence of selected CVD risk factors in St-Henri was also high. In 1986, 46% of adults in St-Henri were regular smokers compared with 35% in the province of Quebec and to 18% in Westmount. The prevalences of inactivity during leisure time were 35% in St-Henri and 24% in Montreal.⁵⁴

Because of budgetary constraints, it was decided early in the process of planning the *coeur en santé St-Henri* programme, to restrict the study population to adults and to orient interventions towards women. In the past, women have attracted less attention in heart health promotion efforts because of their lower

risk of CVD before the menopause.⁵⁵ However, women remain the family gatekeepers for health information and they continue to control the family diet to a great extent. Although men and children are not targeted specifically, we anticipate that they will be affected indirectly through interventions targeted at women.

OBJECTIVES OF THE PROGRAMME

The long term goal of the programme is to decrease CVD morbidity and mortality through reduction in the prevalence of major CVD risk factors including smoking, hypercholesterolaemia (and high fat diet), hypertension, physical inactivity, and obesity. Specific objectives comprise reduction in the prevalence of smoking and in dietary fat consumption and increase in the level of physical activity in St-Henri relative to a comparison community. We postulated that improved attitudes, behaviour specific perceived self efficacy, knowledge of community resources, and perceived social support for positive behaviour change would precede the outcomes of primary interest. Our choice of specific objectives reflect that budgetary constraints did not permit objective measures of physiological risk factors and that telephone survey methodology would be used for the evaluation of the impact of the programme.

Because the programme was developed as a research and demonstration project by a public health department which had obtained external funding for the project, an important secondary objective is that successful interventions be sustained in the community after the study period.

INTERVENTION PROGRAMME MODEL

The design of the intervention programme was driven by an underlying theoretical model based on Bandura's social learning theory,^{56 57} Azjen and Fishbein's reasoned action model,⁵⁸ and Green and Kreuter's prece-de-proceed model⁵⁹ (fig 1). Central to our model is the view that the decision to modify behaviour is determined by factors within the individual. Improved knowledge and beliefs contribute to favourable attitudes and increased perceived self efficacy to undertake healthy behaviours. These in combination with perceived social norms that healthy behaviours are acceptable, contribute to the intention to improve behaviour. Social class, employment status, and cultural values are determinants of the decision making process. Regulatory policy, legislation, and favourable environments in the community facilitate the decision making process. Finally, social support is conceptualised as a key factor in reinforcing the maintenance of newly acquired behaviours.

For each targeted behaviour, we planned interventions in each of the five axes of the Ottawa charter for health promotion:¹² strengthen community action, create supportive environments, build healthy public policy, develop personal skills, and reorient health services.

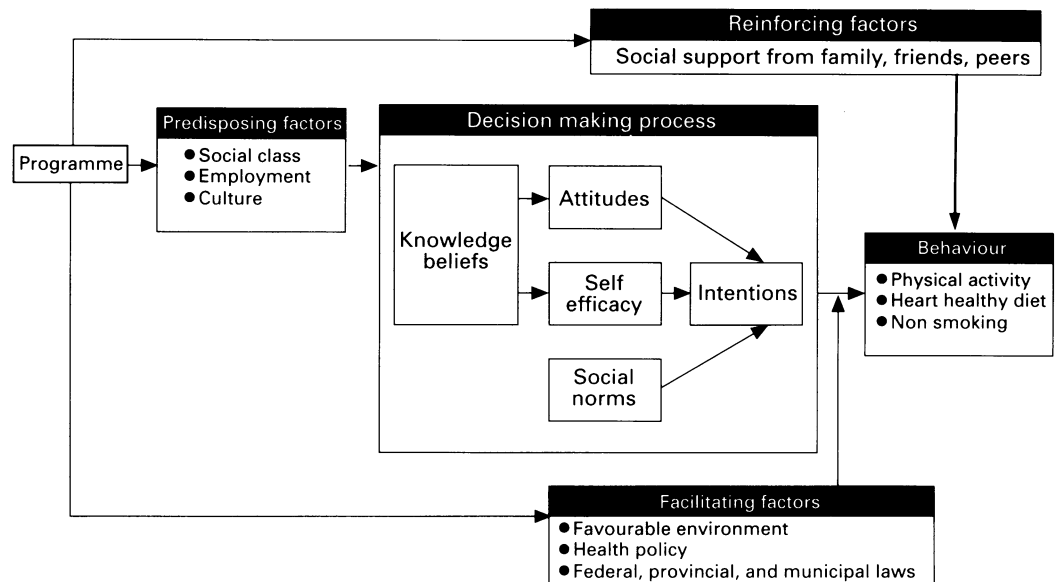


Figure 1 Theoretical model of behaviour change used in the coeur en santé St-Henri programme.

DEVELOPMENT OF THE INTERVENTION PROGRAMME

Substantial efforts are made to adapt each programme intervention to the special characteristics and needs of St-Henri. Proposals for interventions arise through consultation with key community leaders and organisations. Throughout this process, in-depth consultation with community partners is considered to be fundamental in order to develop relevant interventions, to foster community ownership of the project, and to maximise the potential for its eventual institutionalisation.

All interventions undergo a three phase development process (fig 2) and three types of evaluation (table). The first phase consists of the early refinement of the intervention concept or educational material by both programme staff and representatives of key community groups. Formative evaluation, including focus group testing, tests acceptability to and comprehension by the intended audience. The second phase consists of small scale pilot tests of the intervention in the community to assess resources required, barriers and facilitators to implementation, as well as to determine if the target group has been attained, if the activity has been implemented as intended and if the objectives have been met. Implementation and impact evaluations are conducted to assess these objectives, usually using simple methods and unobtrusive measures to maximise the acceptability of the evaluation by the participants and the local community groups which deliver the interventions. Finally, a more widespread

diffusion of the intervention is undertaken with ongoing, low intensity evaluation (implementation and impact) to monitor participation, assess satisfaction and study impact.

Description of the intervention programme

The coeur en santé St-Henri programme was initiated in 1987. Until 1992 it tested the feasibility and acceptability of a variety of heart health promotion activities in the community on a small scale and developed working relationships with important community groups. During this time an equivalent of two, full time staff members worked on the project. External funding was obtained from January 1992 until December 1995, enabling the development of a more intensive and integrated programme. During this period, the project was staffed by the equivalent of three, full time intervention and three full time evaluation staff.

To date, the coeur en santé programme has developed and field tested 39 interventions, eight related to tobacco, 10 to diet, seven to physical activity, and 14 which are multi-factorial. About two thirds of the interventions have been developed since 1992. One quarter of these interventions are single day, ad hoc events (official launch, community lecture series, etc). One quarter are activities which occur on continuing basis, and half consist of time limited but intensive campaigns (contests, courses, etc). The following sections provide an overview of the major interventions de-

Objectives and methods of evaluations of coeur en santé St-Henri interventions

Type of evaluation	Objectives	Methods
Formative	<ul style="list-style-type: none"> To assess relevance, comprehension, and acceptability of activities and health promotion materials 	<ul style="list-style-type: none"> Consultation with steering committee Consultation with key informants Focus group testing
Implementation	<ul style="list-style-type: none"> To determine resources required To determine barriers and facilitators to implementation To determine if target group was attained To determine if activity implemented corresponds to activity planned 	<ul style="list-style-type: none"> Interviews Activity registration and participation forms Journals maintained by intervention agents Questionnaires
Impact	<ul style="list-style-type: none"> To determine if objectives were met 	<ul style="list-style-type: none"> Simple study designs (ie pre-post without control group)

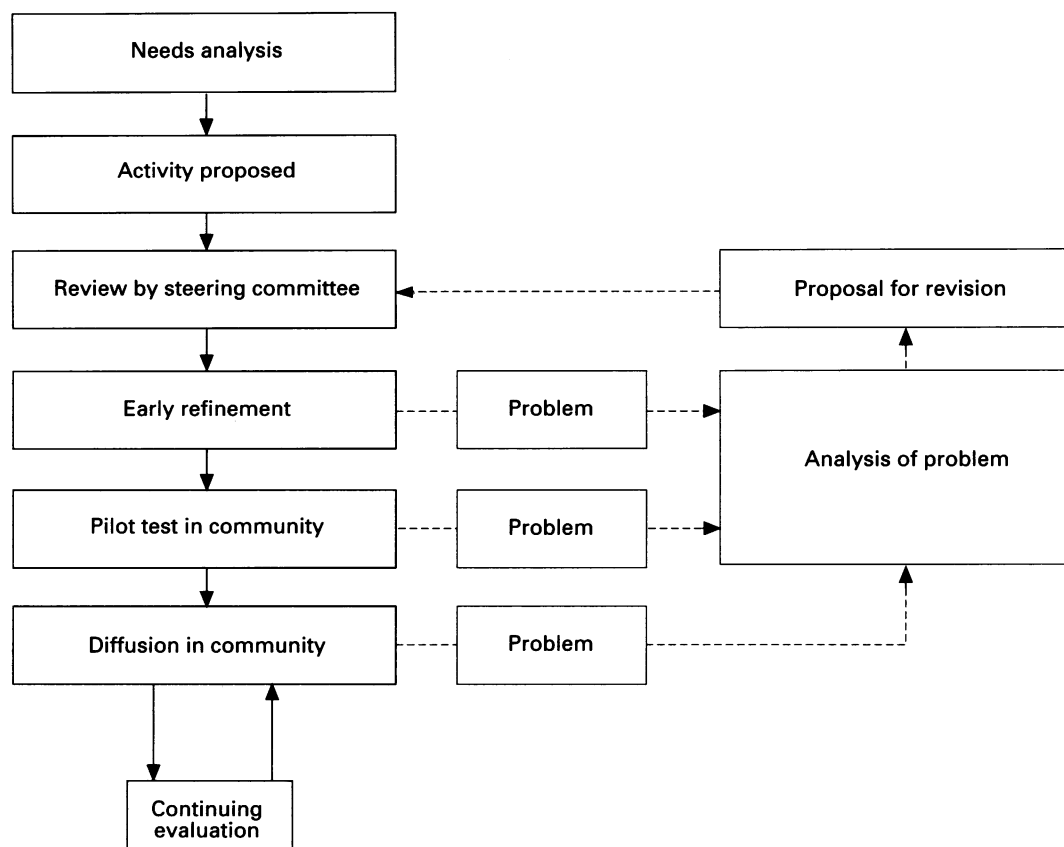


Figure 2 Cycle of intervention development in the coeur en santé St-Henri programme.

veloped under the five axes of the Ottawa charter for health promotion. The cost of the development and implementation of some interventions are described to illustrate the relative amount of resources invested, even though these costs are likely to vary considerably in different settings. The costs exclude personnel salaries unless indicated otherwise.

STRENGTHEN COMMUNITY ACTION

Community action or mobilisation refers to a process aimed at achieving community development whereby individuals, groups, organisations, and institutions in a community are made aware of a problem and become actively involved to solve it. Our community mobilisation strategy includes building links with community groups and leaders through frequent community consultation and responding to requests from the community, adapting our priorities to fit community needs, and developing local expertise in heart health promotion.

Most of the interventions developed to date integrate some aspect of community mobilisation. The following are described by way of example. Responding to community needs, we participated in a coalition to improve socioeconomic conditions in the community. One project emanating from the coalition was the ongoing development of a used sports equipment exchange and rental store to create jobs while increasing access to affordable sports equipment. We also participated in developing a course for future cooks as part of a job

retraining programme for social welfare recipients, and we contributed to a feasibility study for a food transformation and recycling plant to provide jobs locally and produce low cost food.

Our continuing strategy to remain abreast of community needs includes maintaining regular contact with groups which have worked with us in the past, sitting on the boards of major community groups, including intervention preference questions in the baseline evaluation survey of the population, holding small group discussions with random samples of women and community forums and meeting regularly with the local health and social services centre. Comprehensive enumeration of St-Henri social, leisure, business, health, religious and voluntary organisations using commercial and telephone directories is conducted periodically to identify potential partners. It includes in depth interviews with representatives of these organisations to collect data on the mission, target groups, usual activities, and heart health interest of the organisation.

Development of local expertise in health promotion is encouraged by involving community group representatives in planning interventions which are to be delivered by local community group staff or volunteers using simple "How to" guides and requiring little or no training.

CREATE SUPPORTIVE ENVIRONMENTS

The Ottawa charter suggests that physical and social environments can support and facilitate heart healthy behaviours.¹² For example, increasing the number of smoke free public places

might promote non-smoking as a social norm, and making healthy foods more available in grocery stores might encourage selection of healthier foods. Our efforts in this axis to date include a recipe contest, a smoking cessation contest, a point of choice nutrition education campaign in grocery stores, and a menu labelling and healthy food discount programme in restaurants.

The objectives of the recipe contest were to increase awareness of the importance of a healthy diet, to demonstrate that healthy eating could be inexpensive, and to create visibility of the *coeur en santé* project. The 20 week contest from January to May, 1993, was advertised widely in the local newspaper. In addition 9000 leaflets were distributed door to door in St-Henri and letters to recruit participants were sent to 25 community groups. Winning recipes selected after nutrient analyses by a programme dietician, were low in fat, salt, and sugar and high in fibre, as well as inexpensive. They were published weekly for 10 weeks in the local newspaper. Winners received gift certificates for local restaurants and grocery stores, lunch boxes, and kitchen utensils. Only 19 persons, all female, participated in the contest, collectively submitting over 100 recipes. The cost was \$7984 CAN.

The smoking cessation contest was also advertised widely in the local newspaper; 9000 flyers were distributed door to door, and posters were hung in 50 highly visible public locations. Participants were recruited during December 1992 and asked to stop smoking beginning in the first week of January 1993 to capitalise on traditional New Year resolutions. Participants were provided with educational material to assist cessation and telephoned weekly by a programme intervention agent to maintain motivation. Those who remained smoke free for six weeks were eligible for a variety of prizes donated by local business, including a trip to Florida. Only 31 persons (17 females) registered for the contest. Seven remained abstinent during six weeks and were eligible for a prize.⁶⁰ The cost of this contest was \$6764 CAN.

The objective of the four month, point of choice, nutrition education campaign was to increase awareness of grocery store consumers about the healthiness of low fat, high fibre foods. It was conducted in five grocery stores in St-Henri and focused on four food groups themes, one per month from September to December 1993. The campaign comprised ongoing display and distribution of promotional material including heart healthy recipes, cholesterol and blood pressure screening, guided supermarket tours, a monthly lottery, and taste testing. Repeated exit intercept surveys during the campaign showed that 54.2% of the 4000 customers per week were aware of the campaign, 23.5% had made use of campaign materials or participated in its activities, and 12% had modified their purchasing behaviour. The cost of the grocery store intervention was approximately \$6125 CAN.

Our menu labelling and healthy food discount intervention was implemented in two

popular local restaurants – one a fast food and the other a family restaurant. The three month campaign in the Spring of 1993 consisted of training cooks and waiters, modification of cooking methods, addition of healthy food items to the menu, identification and price reductions for healthy items or meals on the menu, and distribution of promotional material. Advertising included newspaper articles, posters and 9000 leaflets delivered door to door in St-Henri. Cash register receipts during lunch hours were analysed to ascertain the proportion of sales of heart healthy items or meals. At the fast food restaurant, 0–2% of 1800 sales weekly represented healthy choices, whereas in the family restaurant, 23%–48% of 200 lunch meals sold weekly were healthy choices. The cost of this intervention was \$3000 CAN.

DEVELOP PERSONAL SKILLS

According to the Ottawa charter, health promotion must support personal and social development by providing information and education for health and enhancing life skills.¹² Most of our programme interventions fall in this axis, including healthy eating and smoking cessation workshops, a smoking cessation self help kit, a correspondence course on healthy weight regulation, a walking club, a weekly doctor's column in the local newspaper, a monthly newsletter distributed door to door, four educational videos, and programme participation in local community fairs, celebrations and events.

The healthy eating workshops comprise six, two hour group sessions at one week intervals. The content of the workshop was developed by a nutritionist from the local health and social services centre, and the format and pedagogical approach were developed in close collaboration with the community groups which deliver the intervention. The course incorporates three pedagogical approaches. The informational approach aims to increase knowledge about CVD, CVD risk factors, and prevention. The motivational approach seeks to persuade participants to change and to maintain motivation. To this end capillary blood cholesterol^{61,62} and blood pressure are measured to help participants evaluate their risk factors and to encourage self monitoring. The behavioural approach enables the participant to identify and modify dietary habits in small, achievable incremental steps. Educational materials adapted to a clientele with low reading skills are used to develop skills to choose, prepare, and cook healthy foods. Because social support is key to behaviour maintenance and because low SES groups, particularly women, often have limited social support, a substantial part of each session is devoted to group discussion to develop support networks in the group.

The smoking cessation workshops were developed in response to community concerns about the high prevalence of smoking in St-Henri and the lack of resources locally to help smokers quit. Our focus group interviews of smokers in St-Henri suggested that many are

heavy smokers of long duration who have made repeated unsuccessful attempts to quit. Many lack social support to quit and female smokers, in particular, view smoking as a coping mechanism for the many stresses in their lives. The workshops comprise five, two hour group sessions at one week intervals, one group booster session one month after the quit date, and two booster mail outs three and six months later. The workshops attempt to increase self awareness about the reasons for smoking. They encourage participants to recognise the personal advantages of quitting and they teach skills to avoid and resist triggers that lead to smoking. A substantial amount of time is provided during each session for sharing experiences and developing support networks.

Both the healthy eating and smoking cessation workshops are delivered by lay community presenters who receive one day's training. Since 1990, they have been offered two to three times per year in three or four community groups. Attendance is limited to 10–12 persons per workshop to maximise group dynamics. To date, over 250 persons have attended the workshops. Our evaluation shows that participants in the healthy eating workshops report eating a low salt, low fat diet more frequently after the workshops than at baseline, and that the one and six month post cessation workshop quit rates are 27% and 15%, respectively. The costs of developing the workshops including printing and binding the presenter's guides and graphic artist costs was about \$5000 CAN per workshop. The costs of implementation, however, are minimal (about \$250 CAN), and are related to advertising, room and equipment rental, and copying educational material.

Our self help smoking quit kit was designed for women with low reading skills who do not participate in the smoking cessation workshops. The kit contains very little written text relying mainly on images of a typical woman from St-Henri learning to avoid and resist smoking triggers and situations. Our evaluation suggests that the kit is useful to trigger a cessation attempt, but alone, is unlikely to result in cessation.⁶³

In 1993 we responded to concerns about lack of access to commercial weight loss programmes among St-Henri women by developing a no-cost healthy weight regulation intervention. This intervention consists of 16, four page leaflets to be used either in the context of a workshop or as an eight week correspondence course. The course content promotes development of a positive body image regardless of weight. It helps women identify the social and commercial pressures to lose weight, and it enables women to determine if losing weight is appropriate, to identify reasons for losing weight, and to develop a long term commitment to healthy eating and physical activity, rather than dieting. Since 1993, 221 women have participated in the programme. One month after the programme, satisfaction with weight increased significantly over baseline measures and women were less likely to count calories, be on a stringent diet, and to report food cravings. The cost for the development of

the healthy weight regulation kit was \$2420 CAN.

We initiated a walking club in response to concerns expressed by community groups that few low cost opportunities for physical activity were available to women in St-Henri. Starting in September 1992, participants for the club were recruited through advertising in the local newspaper and at community events. Materials developed for the walking club include posters, T-shirts, letterhead, banners, a certificate of participation, a walking kit containing maps, a log-book to record duration and distance of walks, informational leaflets on warm up, heart health benefits, and enjoyment of the walks, and tips to increase safety. Several safe walking routes were mapped with the help of local police. Currently, four groups with a total of 40 walkers meet two or three times per week for one-hour brisk walks. The walking club is now coordinated by a community volunteer and functions without input from the *coeur en santé* team. Costs for the development of materials was \$9990 CAN.

The objective of the "doctor's" column in the local weekly newspaper was to increase awareness about the programme and to provide succinct messages on modification of heart health behaviours to St-Henri women. The text was adapted for an audience with less than sixth grade reading skills. The column is 250 words, and uses short sentences each containing no more than one idea or message. It is printed in large type and accompanied by an illustration which occupies 30–40% of available space. Twenty eight columns were published during 1992. Our evaluation shows that even though the newspaper is delivered to all households in St-Henri, only 14% of randomly sampled St-Henri residents reported having viewed the doctor's column; 6% read it weekly. The production cost of the 28 columns was \$5734 CAN.

To increase the reach of our print material, we replaced the doctor's column and all newspaper advertising in October 1993 by a monthly newsletter which is delivered by Canada Post to all 12 789 St-Henri households. The newsletter consists of an eight page, 14 × 21 cm bilingual bulletin printed on coloured paper. The newsletter, which is adapted to an audience with low reading skills, contains information on CVD risk factors, tips for behaviour modification, heart healthy recipes, and announcements of upcoming *coeur en santé* programme activities. One page is offered free of charge to local community groups to advertise their services and upcoming events. Monthly costs of printing, graphic art, and distribution are \$1600 CAN. An awareness and participation survey⁶⁴ conducted after four mailings showed that 38% of respondents had seen the newsletter and 27% had read at least one issue.

Our electronic media strategy was limited by the prohibitive costs of production and air time in the television and radio market of the Montreal area and by the presence of our comparison community in the same market area as St-Henri. However, the intervention and

comparison communities are serviced by two separate cable TV companies. This allowed the development of four, 30 minute videos on smoking, healthy eating, physical activity, and stress which were aired several times on the St-Henri community channel in 1993, without the risk of contaminating the comparison community. These videos were produced in close collaboration with the community channel of the cable company which offered its production staff and equipment at no cost. The videos depicted low income women going through a process of heart healthy behaviour change. They provided examples of problem solving strategies and positive thinking and they attempted to show the pleasurable effects of healthy lifestyles. They used student actors in short sketches, testimonials from St-Henri residents who had made changes, and videotapes of programme interventions such as the walking club and the smoking cessation workshops. The videos were also offered in the three main video rental stores for a three month period. Customers could rent free of charge any of the four videos with each regular video rental. Based on rental records and self administered questionnaires of video store customers, we estimate that close to 400 people viewed the videos. The total cost of production was \$3754 CAN, over half of which were professional fees for the student actors. Graphic art and reproduction for video store display totalled \$1253 CAN.

Finally, the programme participates regularly in community events which attract large numbers of St-Henri residents. Our objectives are to increase awareness of our programme, perform short direct education in informal settings, and promote registration in our more intensive interventions. For example, we participate in the biannual main street sidewalk sale sponsored by local retailers. One or more booths are set up at key locations on the street. Shoppers obtain free educational material, risk factor assessment, and counselling including blood pressure, body mass index and waist to hip ratio, total serum cholesterol using a portable dry chemistry analyser,^{61,62} VO₂ max estimation using the validated Canadian step test,⁶⁵ and diet and smoking cessation counselling. We have developed several educational games pertaining to healthy lifestyle which are used in these sidewalk sales, as well as in the several recreational activities we participate in or initiate during the summer months in local public parks. Over 1000 individual encounters resulted from these events from 1992 to 1994. The costs of development of the material used in these events was high (\$20 106 CAN). Included were items such as banners, a large (2 × 2 m) helium filled balloon, and several props and games. Continuing costs for these events average between \$1000 and \$2000 CAN.

BUILD HEALTHY PUBLIC POLICY

The Ottawa charter suggests that policy makers in all sectors have responsibility for health.¹² It affirms that action in areas as diverse as

legislation, taxation, and fiscal policy can lead to better health. For example, increasing excise taxes on tobacco products results in price increases which could reduce sales and consumption. Legislation increasing the legal age for smoking could delay cigarette experimentation and decrease the number of future smokers.

Because public policy is developed at the municipal, provincial, and federal government levels, our efforts in this axis focus on supporting existing health related legislation. To date we have developed an intervention to support implementation of smoking restriction policies in environments targeted by existing Canadian legislation. However, of the 17 community groups, health and medical clinics, sports and recreation centres, and banks approached in St-Henri, seven claimed that they already had a smoking restriction policy and the other 10 were not interested in the intervention.

REORIENT HEALTH SERVICES

Reorienting health services entails convincing health care providers to adopt health promotion as an integral part of their practice. Before our programme, the local health and social service centre did not allocate any resources to heart health. Currently, it has created an internal heart health committee, allocated two staff members to work part time on the *coeur en santé* project, assumed responsibility for organising and funding the biannual heart health fairs, offered CVD risk factor management refresher courses to its physicians, and collaborated in the development of other *coeur en santé* activities.

Heart health fairs provide CVD risk factor profiles and individual counselling to participants. These one day events are held in various locations in St-Henri including the local health and social service centre, community groups, grocery stores, firestations, schools and banks. Participants circulate through seven stations where blood pressure, capillary blood total cholesterol, height and weight are measured and information on smoking, diet, physical activity and personal and family history of heart disease is recorded. A physician or nurse reviews and discusses the information with the participant, offers counselling, provides educational material and, when appropriate, refers the participant to a *coeur en santé* course, workshop, or other community resource. Although the goals are to increase knowledge and motivate participants to adopt heart healthy behaviours, those identified as high risk are referred to their physicians according to published guidelines.^{66,67} Up to December 1994, 12 heart health fairs had been held in St-Henri, attracting close to 1500 participants. These events are labour intensive requiring 10–15 professional staff and six volunteers. The cost per fair is approximately \$800 CAN.

Discussion

The *coeur en santé* St-Henri project studies several issues not addressed in the major US

trials on community CVD prevention. It tests the feasibility and impact of a heart health promotion programme in a low income, low education urban neighbourhood. It tests whether an ordinary public health department can implement such a complex programme. It attempts to determine the utility of the Ottawa charter as a framework for developing interventions. Finally, it ascertains whether targeting women is a viable strategy to impact on the entire community.

The feasibility of this programme is enhanced for two reasons. Firstly, our detailed knowledge of St-Henri ensures that our objectives are relevant and congruent with other community priorities. For example, it would have been difficult to develop working relationships with some groups if we had not integrated concerns about poverty and unemployment into our programming. Knowledge of community institutions, agencies, and formal and informal groups also facilitates access to key partners for the development of interventions. Secondly, careful adaptation of strategies and educational materials ensures that specific interventions are congruent with social and cultural norms, with community values, and with the reading and learning skills of the target groups. The process of adaptation requires formative and implementation evaluation methods that are simple, inexpensive and unobtrusive in order to be acceptable to participants.

Because *coeur en santé* St-Henri originated in an ordinary public health department, our experience could be relevant to other public health departments which attempt to adapt knowledge acquired from the large community trials to local needs and conditions. Our experience suggests that careful consideration must be given to objectives that are achievable. Even on a relatively small scale, heart health promotion is not inexpensive. Our research grant totalled close to \$1 million (CAN) (about 40% for the intervention) and our public health department will have contributed staff time equivalent to \$500 000 (CAN) (about 75% for the intervention). However, because of costs we limited the scope of our programme to women and we excluded school and worksite interventions.

Coeur en santé St-Henri examines the utility of the Ottawa charter as a framework for developing the programme by selecting interventions in each of the five axes described by the charter for each targeted risk factor. This has so far proved particularly difficult for healthy public policy and environmental interventions because these axes are more influenced by actions at the provincial, national, and municipal levels, than at the local level, and therefore the utility of including these dimensions in a programme such as ours remains questionable.

Finally, our programme selects interventions such as contests, healthy weight conferences and correspondence courses which are more likely to attract women. In addition, we work closely with community groups which target St-Henri women in the context of their ongoing programmes. Though men are not excluded,

our advertising campaigns and our educational material are more oriented to women than men and tend to use women as examples and illustrations. Although women are more aware of our programme and participate to a greater extent, we believe that men will also be affected.

The success of the *coeur en santé* programme will not be known for several years. In addition to its impact on behaviour, success will be judged by the degree of awareness generated in the community and the extent to which interventions are maintained by local community organisations.⁶⁴ To date, we have tested 39 interventions. Some including the smoking cessation contest, the healthy recipe contest and the smoking policy intervention had little success. Several, including the newsletter and heart health fairs have been successfully implemented and have reached a substantial proportion of the population, and some have been integrated in the ongoing programmes of existing organisations (heart health fairs, smoking cessation, and healthy eating courses) or are self sustaining (walking club). Subsequent papers will describe in more details the development, implementation, and evaluation of specific interventions.

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